

AMENDMENTS TO THE CLAIMS

A detailed listing of all claims that are, or were, in the present application, irrespective of whether the claim(s) remains under examination in the application are presented below. The claims are presented in ascending order and each includes one status identifier. Those claims not cancelled or withdrawn but amended by the current amendment utilize the following notations for amendment: 1. deleted matter is shown by strikethrough; and 2. added matter is shown by underlining.

1-9. (Cancelled).

Please add new claims 10-26 as follows:

10. (New) A method of producing cuts in a transparent material, comprising the steps of:

generating optical breakthroughs in the material by application of laser radiation focused into the material at a focal point

shifting the focal point so as to form the cut by a surface lattice-type array of sequentially arranged optical breakthroughs;

shifting the focal point along a path such that adjacent optical breakthroughs are not generated immediately following each other along said path; and

wherein the surface lattice-type array of the optical breakthroughs is made up of at least two partial lattices, which are processed one after another, with respect to their associated optical breakthroughs.

11. (New) The method as claimed in Claim 10, wherein the transparent material comprises the cornea of an eye.

12. (New) The method as claimed in Claim 10, further comprising the step of selecting three partial lattices such that, in the surface lattice-type array for at least one optical breakthrough, in at least one partial lattice all adjacent optical breakthroughs belong to other partial lattices.

13. (New) The method as claimed in Claim 12, wherein for all partial lattices, the optical breakthroughs do not have an immediately adjacent optical breakthrough belonging to the same partial lattice.

14. (New) The method as claimed in Claim 10, further comprising the steps of generating the cut by a surface lattice-type array in the shape of a trigonal lattice, and generating three partial lattices from one partial lattice template by three different displacements of the template along an axis of said partial lattice template.

15. (New) The method as claimed in Claim 10, further comprising the step of processing at least one partial lattice incompletely with optical breakthroughs.

16. (New) A device for producing cuts in a transparent material, comprising:

a source of laser radiation, which focuses laser radiation into the material and causes optical breakthroughs therein;

a scanning unit, which shifts the focal point;

a control unit which controls the scanning unit so as to form the cut by a surface lattice-type array of sequentially arranged optical breakthroughs in the material, said control unit shifting the focal point along a path and not generating adjacent optical breakthroughs immediately following each other along said path;

wherein the surface lattice-type array of the optical breakthroughs is made up of at least two partial lattices and the control unit effects focus shifting such that the partial lattices are processed one after another, with respect to their associated optical breakthroughs.

17. (New) The device as claimed in Claim 16, wherein the transparent material comprises cornea of an eye.

18. (New) The device as claimed in Claim 16, wherein the control unit selects the partial lattices such that, in at least one partial lattice for at least one optical breakthrough, all adjacent optical breakthroughs belong to other partial lattices.

19. (New) The device as claimed in Claim 18, wherein for all partial lattices, the optical breakthroughs do not have an immediately adjacent optical breakthrough belonging to the same partial lattice.

20. (New) The device as claimed in Claim 16, wherein the control unit generates the cut by generating a surface lattice-type array in the form of a trigonal lattice and generates three partial lattices from a partial lattice template by three different displacements of the template along an axis of said partial lattice template.

21. (New) The device as claimed in Claim 16, wherein at least one partial lattice is not processed completely with optical breakthroughs.

22. (New) A method of producing cuts in a cornea, comprising the steps of:  
sequentially generating a series of optical breakthroughs in the cornea by application of laser radiation focused into the cornea at a focal point  
sequentially shifting the focal point along a predefined surface lattice array so as to form the cut;

predefining the surface lattice array and sequence of shifting such that adjacent optical breakthroughs are not sequentially generated immediately following each other and a time delay exists between the formation of the adjacent optical breaks sufficient for a plasma bubbles formed at a preceding optical break to collapse prior to generation of a following adjacent optical break; and

wherein the surface lattice-type array of the optical breakthroughs is made up of at least two partial lattices, which are processed one after another.

23. (New) The method as claimed in Claim 22, further comprising the step of selecting three partial lattices such that, in the surface lattice-type array for at least one optical breakthrough, in at least one partial lattice all adjacent optical breakthroughs belong to other partial lattices.

24. (New) The method as claimed in Claim 22, wherein for all partial lattices, the optical breakthroughs do not have an immediately adjacent optical breakthrough belonging to the same partial lattice.

25. (New) The method as claimed in Claim 22, further comprising the steps of generating the cut by a surface lattice-type array in the shape of a trigonal lattice, and generating three partial lattices from one partial lattice template by three different displacements of the template along an axis of said partial lattice template.

26. (New) The method as claimed in Claim 10, further comprising the step of processing at least one partial lattice incompletely with optical breakthroughs.